

Claims: Claims 1, 17, 32, and 33 are amended in this office action response. Claims 6 is canceled in this office action response. Additions to claims are indicated by underlining. Deletions to claims are indicated by strikeouts. Upon entry of this amendment, claims 1-5 and 7-33 will be pending in this application.

Listing of Claims:

1. (Currently Amended) A method for calibrating a printhead, comprising:
printing a swath while providing a test energy to the printhead above an expected turn on energy for the printhead;
measuring a temperature rise of the printhead during the swath; and
calibrating an operating energy of the printhead based on the measured temperature rise while performing a non-test print job.
2. (Original) The method of claim 1, wherein calibrating the operating energy includes comparing the measured temperature rise of the printhead with an expected temperature rise.
3. (Original) The method of claim 1, wherein calibrating the operating energy includes adjusting the amount of energy provided to the printhead.
4. (Original) The method of claim 3, wherein adjusting the amount of energy includes increasing a voltage potential applied to the printhead.

5. (Original) The method of claim 3, wherein adjusting the amount of energy includes decreasing a voltage potential applied to the printhead.

6. (Canceled)

7. (Previously Presented) A method for setting an operating energy provided to a printhead, comprising:

applying a test energy to a printhead during a normal printing pass at an energy above an expected turn on energy of the printhead;
measuring a temperature rise of the printhead during the printing pass;

comparing the measured temperature rise of the printhead to an expected temperature rise; and

calibrating the energy provided to the printhead based on the comparison.

8. (Original) The method of claim 7, wherein applying an energy above the expected turn on energy includes applying an extended pulse width to the printhead during the printing pass.

9. (Original) The method of claim 7, wherein applying an energy above the expected turn on energy includes increasing a voltage applied to firing resistors of the printhead.

10. (Original) The method of claim 7, wherein applying a test energy includes applying a test energy during execution of a normal print job.

11. (Original) The method of claim 7, wherein comparing the measured temperature rise to an expected temperature rise includes

comparing the measured temperature rise with an expected temperature rise derived from a thermal turn on energy of the printhead.

12. (Original) The method of claim 7, wherein calibrating the energy provided to the printhead includes reducing a pulse width of the energy provided to the printhead.

13. (Previously Presented) A computer readable medium having a set of computer executable instructions thereon for causing a device to perform a method, the method comprising:

applying a firing energy to a printhead which is above an expected turn on energy of the printhead to increase a temperature of the printhead while printing a normal print job;

measuring a change of temperature of the printhead;

comparing the change of temperature of the printhead with an anticipated change of temperature; and

calibrating an operating energy of the printhead.

14. (Original) The medium of claim 13, wherein applying a firing energy above an expected turn on energy includes applying an amount of firing energy that is greater than an amount of energy which is typically applied to the printhead while printing.

15. (Original) The medium of claim 13, wherein calibrating the operating energy of the printhead includes adjusting an applied voltage.

16. (Original) The medium of claim 13, wherein calibrating the operating energy of the printhead includes adjusting a pulse width of the operating energy.

17. (Currently Amended) A computer readable medium having a set of computer executable instructions thereon for causing a device to perform a method, comprising:

printing a swath while providing an energy to the printhead above an expected turn on energy for the printhead;

measuring a temperature rise of a printhead during the swath; and

calibrating an operating energy of the printhead based on the measured temperature rise while performing a non-test print job.

18. (Previously Presented) A printing device, comprising:
a printhead;

a temperature sensor coupled to the printhead and operable to measure a temperature of the printhead during a normal printing scan; and

a calibration component coupled to the temperature sensor and operable to variably adjust an operating energy provided to the printhead based on the temperature of the printhead measured during the printing scan.

19. (Original) The printing device of claim 18, wherein the calibration component includes a calibration component operable to determine a proper operating energy of the printhead by comparing a detected temperature rise of the printhead, measured during the printing scan, with an expected temperature rise.

20. (Original) The printing device of claim 18, wherein the calibration component is operable to calibrate an operating energy for the printhead by repeatedly comparing thermal measurements taken during one or more printing scans.

21. (Original) The printing device of claim 18, wherein the calibration component is operable to calibrate an operating energy of the printhead during normal printing.

22. (Original) The printing device of claim 18, wherein the calibration component is operable to variably adjust the operating energy provided to the printhead during normal printing.

23. (Original) The printing device of claim 18, wherein the calibration component includes a set of computer executable instructions.

24. (Original) The printing device of claim 18, wherein the calibration component is operable to variably adjust the operating energy by varying a pulse width of a potential applied to firing resistors on the printhead.

25. (Previously Presented) A printing device, comprising:
a printhead;
means for applying a high energy pulse to a printhead and determining a proper operating energy for the printhead during one or more normal printing scans; and
means for comparing temperature changes of the printhead, during the one or more normal printing scans, with an expected temperature change.

26. (Original) The printing device of claim 25, wherein means for applying a high energy pulse to a printhead and determining a proper operating energy includes a set of computer executable instructions.

27. (Original) The printing device of claim 25, wherein the means for applying a high energy pulse to a printhead and determining a

proper operating energy includes a calibration component coupled to the printhead.

28. (Original) The printing device of claim 25, wherein the means for comparing temperature changes of the printhead include a printhead thermo-couple interfaced to a calibration component.

29. (Original) The printing device of claim 25, wherein the means are performed while executing a print job.

30. (Original) The printing device of claim 25, wherein the device further includes means for adjusting a firing energy provided to the printhead.

31. (Original) The printing device of claim 30, wherein the means for adjusting the firing energy includes a set of interface electronics receiving feedback from a calibration component for incrementing or decrementing a voltage potential applied to firing resistors of the printhead.

32. (Currently Amended) A printing system, comprising:
a printing device, wherein the printing device includes;
a printhead;
a temperature sensor coupled to the printhead and operable to measure thermal characteristics of the printhead during printing;
and
a calibration component coupled to the temperature sensor and operable to set an operating energy for the printhead at an energy above an expected turn on energy for the printhead, while the printhead is performing a normal print job, based on thermal characteristics measured during printing; and

a host device connected to the printing device and operable to transmit one or more print jobs to the printing device.

33. (Currently Amended) The system of claim 32, wherein the calibration component includes a calibration component operable to compare the measured thermal characteristics detected during application of the energy above the expected turn on energy ~~an elevated, applied firing energy~~ to an expected temperature rise derived from a thermal turn on energy characteristic of the printhead.